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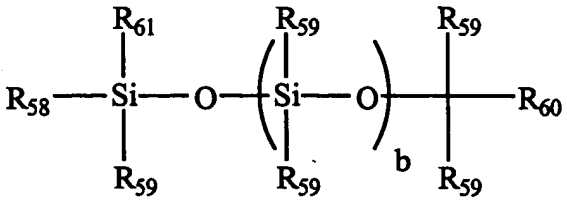
We claim:

1. A method of lowering the Young's modulus or tan δ of a silicone hydrogel comprising the step of incorporating in said hydrogel, a mono-alkyl terminated polydimethylsiloxane monomer having the structure:



where b = 0 to 100; R_{58} is a monovalent group containing at least one ethylenically unsaturated moiety; R_{59} is independently a monovalent alkyl, or aryl group, which may be further substituted with alcohol, amine, ketone, carboxylic acid or ether group; R_{60} is a monovalent alkyl, or aryl group, which may be further substituted with alcohol, amine, ketone, carboxylic acid or ether groups; and R_{61} is independently alkyl or aromatic, or a monovalent siloxane chain comprising from 1 to 100 repeating Si-O units.

2. The method of claim 1, wherein b is about 4 to about 16, R_{58} is a monovalent group containing at least one styryl, vinyl, or methacrylate moiety, R_{59} is methyl, R_{60} is C_{3-8} alkyl group, and R_{61} is methyl.

3. The method of claim 1, wherein b is about 8 to about 10, R_{58} is a monovalent group containing at least one styryl, vinyl, or methacrylate moiety, R_{59} is methyl, R_{60} is C_{3-8} alkyl group, and R_{61} is methyl.

4. The method of claim 1, wherein b is about 4 to about 16, R_{58} is a methacrylate moiety; each R_{59} is methyl; and R_{60} is a butyl group.

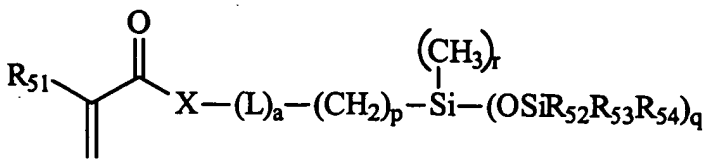
5. The method of claim 1, wherein b is about 8 to about 10, R_{58} is a methacrylate moiety; each R_{59} is methyl, R_{60} is a butyl group, and R_{61} is methyl.

6. The method of claim 1, wherein about 2 to about 70 % wt, based on the total weight of reactive monomer, of the mono-alkyl terminated polydimethylsiloxane is incorporated in said silicone hydrogel.

7. The method of claim 1, wherein about 4 to about 50 % wt, based on the total weight of reactive monomer, of the mono-alkyl terminated polydimethylsiloxane is incorporated in said silicone hydrogel.

8. The method of claim 1, wherein about 8 to about 40 % wt, based on the total weight of reactive monomer, of the mono-alkyl terminated polydimethylsiloxane is incorporated in said silicone hydrogel.

9. The method of claim 1, wherein said silicone hydrogel additionally comprises a silicone-containing monomer other than that of claim 1 and having the structure:



wherein R_{51} is H, C_{1-5}alkyl, or an ethylenically unsaturated moiety, q is 1, 2, or 3 and for each q, R_{52}, R_{53} and R_{54} is independently an alkyl group, an aromatic group or a monovalent siloxane chain comprising from 1 to 100 repeating Si-O units, p is 1 to 10, r = (3-q), X is O or NR_{55}, where R_{55} is H or a monovalent alkyl group with 1 to 4 carbons, a is 0 or 1, and L is a divalent linking group.

10. The method of claim 1, wherein said silicone hydrogel additionally comprises 3-methacryloxypropyltris (trimethylsiloxy) silane.

11. The method of claim 9, wherein each of R_{52}, R_{53}, and R_{54} is independently ethyl, methyl, benzyl or phenyl.

12. A silicone hydrogel having a Young's modulus of less than about 154 psi and a tan δ of equal to or less than about 0.3 at a frequency of 1 Hz at 25°C.

13. The silicone hydrogel of claim 12, wherein the Young's modulus is less than about 130 psi.

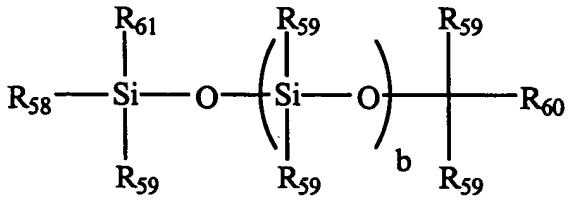
14. The silicone hydrogel of claim 12, wherein the Young's modulus is less than about 100 psi.

15. The silicone hydrogel of claim 12, wherein the Young's modulus is less than about 70 psi.

16. The silicone hydrogel of claim 12, wherein the Young's modulus is less than about 45 psi.

17. The silicone hydrogel of claim 12, further comprising an O_2Dk greater than about 40 barrer.

18. The silicone hydrogel of claim 12, 13, or 17, further comprising about 2-70 % wt, based on the total weight of reactive monomer, of a mono-alkyl terminated polydimethylsiloxane having the structure:



where b = 0 to 100, where it is understood that b is a distribution having a mode equal to a stated value, preferably 8 to 10; R_{58} is a monovalent group containing at least one ethylenically unsaturated moiety, preferably a monovalent group containing a styryl, vinyl, or methacrylate moiety, more preferably a methacrylate moiety; each R_{59} is independently a monovalent alkyl, or aryl group, which may be further substituted with alcohol, amine, ketone, carboxylic acid or ether groups, preferably unsubstituted monovalent alkyl or aryl groups, more preferably methyl; R_{60} is a monovalent alkyl, or aryl group, which may be further substituted with alcohol, amine, ketone, carboxylic acid or ether groups, preferably unsubstituted monovalent alkyl or aryl groups, preferably a C_{1-10} aliphatic or aromatic group which may include hetero atoms, more preferably C_{3-8} alkyl groups,

most preferably butyl, and R_{61} is independently alkyl or aromatic, preferably ethyl, methyl, benzyl, phenyl, or a monovalent siloxane chain comprising from 1 to 100 repeating Si-O units.

19. The silicone hydrogel of claim 18, wherein b = 4 to 16, R_{58} is a monovalent group containing at least one styryl, vinyl, or methacrylate moiety, each R_{59} is methyl, R_{60} is a C_{3-8} alkyl group, and R_{61} is methyl.

20. The silicone hydrogel of claim 18, wherein b = 8 to 10, R_{58} is a methacrylate moiety; each R_{59} is methyl; R_{60} is a butyl group, and R_{61} is methyl.

21. The silicone hydrogel of claim 18, wherein the mono-alkyl terminated polydimethylsiloxane is a monomethacryloxypropyl terminated polydimethylsiloxane.

22. The silicone hydrogel of claim 18, having a Young's modulus of about 30-160 psi.

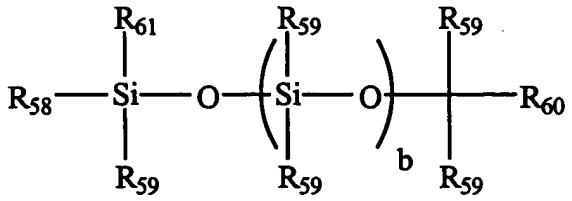
23. The silicone hydrogel of claim 18, having a Young's modulus of about 40 –130 psi.

24. A contact lens comprising a silicone hydrogel having a Young's modulus less than about 180 psi and a tan δ of equal to or less than about 0.25 at a frequency of 1 Hz at 25°C.

25. The contact lens of claim 24, having a Young's modulus of less than about 100 psi.

26. The contact lens of claim 24, further comprising an O_2Dk greater than about 40 barrer.

27. The contact lens of claim 24, 25, or 26, further comprising about 2-70 % wt, based on the total weight of reactive monomer, of a mono-alkyl terminated polydimethylsiloxane having the structure:



where b = 0 to 100, where it is understood that b is a distribution having a mode equal to a stated value, preferably 8 to 10; R_{58} is a monovalent group containing at least one ethylenically unsaturated moiety, preferably a monovalent group containing a styryl, vinyl, or methacrylate moiety, more preferably a methacrylate moiety; each R_{59} is independently a monovalent alkyl, or aryl group, which may be further substituted with alcohol, amine, ketone, carboxylic acid or ether groups, preferably unsubstituted monovalent alkyl or aryl groups, more preferably methyl; R_{60} is a monovalent alkyl, or aryl group, which may be further substituted with alcohol, amine, ketone, carboxylic acid or ether groups, preferably unsubstituted monovalent alkyl or aryl groups, preferably a C_{1-10} aliphatic or aromatic group which may include hetero atoms, more preferably C_{3-8} alkyl groups, most preferably butyl, and R_{61} is independently alkyl or aromatic, preferably ethyl, methyl, benzyl, phenyl, or a monovalent siloxane chain comprising from 1 to 100 repeating Si-O units.

28. The contact lens of claim 27, wherein b = 4 to 16, R_{58} is a monovalent group containing at least one styryl, vinyl, or methacrylate moiety, each R_{59} is methyl, R_{60} is C_{3-8} alkyl group, and R_{61} is methyl.

29. The contact lens of claim 27, wherein b = 8 to 10, R_{58} is a methacrylate moiety; each R_{59} is methyl, R_{60} is a butyl group, and R_{61} is methyl.

30. The contact lens of claim 27, wherein the mono-alkyl terminated polydimethylsiloxane is a monomethacryloxypropyl terminated polydimethylsiloxane.

31. The contact lens of claim 27, wherein said silicone hydrogel has a Young's modulus of about 30-160 psi.

32. The contact lens of claim 27, wherein said silicone hydrogel has a Young's modulus of about 40-130 psi.

33. The contact lens of claim 27, further comprising a surface layer that is more hydrophilic than said silicone hydrogel.

34. The contact lens of claim 33, further comprising a coating that is more hydrophilic than said silicone hydrogel.

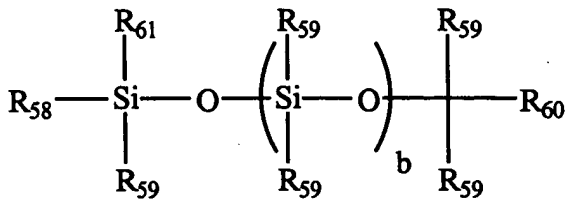
35. The contact lens of claim 33, wherein the surface layer comprises poly(acrylic acid).

36. A silicone hydrogel contact lens comprising a (CT) of about 50 to about 160 μm and a Young's modulus (E) of about 40 to about 300 psi, wherein $(E)(CT)^2$ is less than about 1 psi • mm^2.

37. The silicone hydrogel contact lens of claim 36, further comprising a tan δ of equal to or less than about 0.3 at a frequency of 1 Hz at 25°C.

38. The silicone hydrogel contact lens of claim 36, further comprising a O_2Dk greater than about 40 barrer.

39. The silicone hydrogel contact lens of claim 36, 37, or 38, further comprising at least 5% wt of a mono-alkyl terminated polydimethylsiloxane having the structure:



where b = 0 to 100; R_{58} is a monovalent group comprising at least one ethylenically unsaturated moiety; each R_{59} is independently a monovalent alkyl, or aryl group, which may be further substituted with alcohol, amine, ketone, carboxylic acid or ether groups; R_{60} is a monovalent alkyl, or aryl group, which may be further substituted with alcohol, amine, ketone, carboxylic acid or ether groups, and R_{61} is independently alkyl or aromatic, or a monovalent siloxane chain comprising from 1 to 100 repeating Si-O units.

40. The silicone hydrogel contact lens of claim 39, wherein b = 4 to 16, R_{58} is a monovalent group containing at least one styryl, vinyl, or methacrylate moiety, each R_{59} is methyl, and R_{60} is C_{3-8} alkyl group.

41. The silicone hydrogel contact lens of claim 39, wherein b = 8 to 10, R_{58} is a methacrylate moiety; each R_{59} is methyl; R_{60} is a butyl group, and R_{61} is methyl.

42. The silicone hydrogel contact lens of claim 39, wherein the mono-alkyl terminated polydimethylsiloxane is a monomethacryloxypropyl terminated polydimethylsiloxane.

43. The silicone hydrogel contact lens of claim 39, wherein the center thickness is less than about 85 μm.

44. The silicone hydrogel contact lens of claim 39 wherein the thickness is less than about 100 μm and the Young's modulus is less than about 100 psi.

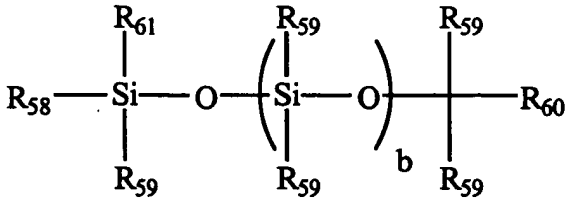
45. The silicone hydrogel contact lens of claim 39, wherein the amount of mono-alkyl terminated polydimethylsiloxane is about 20 % wt.

46. The silicone hydrogel contact lens of claim 39, wherein the center thickness is less than 129 μm and the Young's modulus is less than about 60 psi.

47. The silicone hydrogel contact lens of claim 39, wherein the amount of mono-alkyl terminated polydimethylsiloxane is about 30% wt.

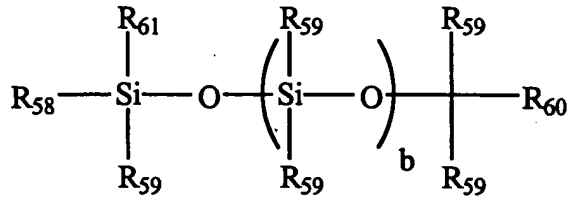
48. A method of making a polymer comprising preparing a silicone based macromer by Group Transfer Polymerization and reacting said

macromer with a polymerization mixture comprising a mono-alkyl terminated polydimethylsiloxane monomer having the structure:



where b = 0 to 100; R_{58} is a monovalent group containing at least one ethylenically unsaturated moiety; R_{59} is independently a monovalent alkyl, or aryl group, which may be further substituted with alcohol, amine, ketone, carboxylic acid or ether group; R_{60} is a monovalent alkyl, or aryl group, which may be further substituted with alcohol, amine, ketone, carboxylic acid or ether groups; and R_{61} is independently alkyl or aromatic, or a monovalent siloxane chain comprising from 1 to 100 repeating Si-O units.

49. The method of claim 48 wherein said silicone based macromer comprises a mono-alkyl terminated polydimethylsiloxane monomer having the structure:



where b = 0 to 100; R_{58} is a monovalent group containing at least one ethylenically unsaturated moiety; R_{59} is independently a monovalent alkyl, or aryl group, which may be further substituted with alcohol, amine, ketone, carboxylic acid or ether group; R_{60} is a monovalent

alkyl, or aryl group, which may be further substituted with alcohol, amine, ketone, carboxylic acid or ether groups; and R_{61} is independently alkyl or aromatic, or a monovalent siloxane chain comprising from 1 to 100 repeating Si-O units.

50. The method of claim 48 wherein said polymerizable mixture comprises Si_{8-10} monomethacryloxy terminated polydimethyl siloxane, a polydimethylsiloxane other than Si_{8-10} monomethacryloxy terminated polydimethyl siloxane, and a hydrophilic monomer.

51. The method of claim 48, wherein said macromer is the reaction product of a reaction mixture comprising 2-(trimethylsiloxy)ethyl methacrylate, methyl methacrylate, methacryloxypropyltris(trimethylsiloxy)silane, and mono-methacryloxypropyl terminated mono-butyl terminated polydimethylsiloxane.

52. The method of claim 48, wherein the macromer is functionalized with a free radical polymerizable group.

53. The method of claim 48, wherein the reaction mixture of claim 48 is treated with a catalyst and a molecule containing both an isocyanate group and a free radical polymerizable group.

54. The method of claim 53 wherein said catalyst comprises, tin, bismuth or a tertiary amine and said molecule containing both an isocyanate group and said free radical polymerizable group is dimethyl meta-isopropenyl benzyl isocyanate.

55. A macromer useful for making silicone hydrogels comprising a Group Transfer Polymerization product of a reaction mixture comprising 2-(trimethylsiloxy)ethyl methacrylate, methyl methacrylate, methacryloxypropyltris(trimethylsiloxy)silane, and mono-methacryloxypropyl terminated mono-butyl terminated polydimethylsiloxane.

56. The macromer of claim 55, wherein the Group Transfer Polymerization product reaction mixture comprises about 19.1 moles of 2-(trimethylsiloxy)ethyl methacrylate, about 2.8 moles of methyl methacrylate, about 7.9 moles of methacryloxypropyltris(trimethylsiloxy)silane, and about 3.3 moles of mono-methacryloxypropyl terminated mono-butyl terminated polydimethylsiloxane.

57. A silicone hydrogel comprising the reaction product of a silicone based macromer Group Transfer Polymerization product and a polymerizable mixture comprising Si_{8-10} monomethacryloxy terminated polydimethyl siloxane, a polydimethylsiloxane other than Si_{8-10} monomethacryloxy terminated polydimethyl siloxane, and a hydrophilic monomer.

58. The silicone hydrogel of claim 57, wherein the macromer is the Group Transfer Product of a reaction mixture 2-(trimethylsiloxy)ethyl methacrylate, methyl methacrylate, methacryloxypropyltris(trimethylsiloxy)silane, and mono-methacryloxypropyl terminated mono-butyl terminated polydimethylsiloxane.

59. The silicone hydrogel of claim 57, wherein the macromer is the Group Transfer Polymerization product of reaction mixture comprising about 19.1 moles of 2-(trimethylsiloxy)ethyl methacrylate, about 2.8 moles of methyl methacrylate, about 7.9 moles of methacryloxypropyltris(trimethylsiloxy)silane, and about 3.3 moles of mono-methacryloxypropyl terminated mono-butyl terminated polydimethylsiloxane

60. The silicone hydrogel of claim 57, 58, or 59 wherein the polymerizable mixture comprises Si_{8-10} monomethacryloxy terminated polydimethyl siloxane; methacryloxypropyl tris(trimethyl siloxy) silane; N,N-dimethyl acrylamide; 2-(trimethylsiloxy)ethyl methacrylate; and tetraethyleneglycol dimethacrylate.

61. The silicone hydrogel of claim 60, wherein the macromer is present in an amount of about 10 to about 60 wt percent, the Si_{8-10} monomethacryloxy terminated polydimethyl siloxane is present in an amount of about 0 to about 45 wt percent; the methacryloxypropyl tris(trimethyl siloxy) silane is present in an amount of about 0 to about 40 wt percent; the N,N-dimethyl acrylamide is present in an amount of about 5 to about 40 wt percent; the 2-hydroxy ethyl methacrylate is present in an amount of about 0 to about 10 wt percent; and the tetraethyleneglycol dimethacrylate is present in an amount of about 0 to about 5 wt percent.

62. The silicone hydrogel of claim 60, wherein the macromer is present in an amount of about 15 to about 25 wt percent, the Si_{8-10} monomethacryloxy terminated polydimethyl siloxane is present in an amount of about 20 to about 30 wt percent; the methacryloxypropyl tris(trimethyl siloxy) silane is present in an

amount of about 15 to about 25 wt percent; the N,N-dimethyl acrylamide is present in an amount of about 20 to about 30 wt percent; the 2-hydroxy ethyl methacrylate is present in an amount of about 2 to about 7 wt percent; and the tetraethyleneglycol dimethacrylate is present in an amount of about 0 to about 5 wt percent.

63. The silicone hydrogel of claim 60, 61, or 62 wherein the polymerizable mixture further comprises poly(N-vinyl pyrrolidinone).

64. The silicone hydrogel of claim 61, wherein the polymerizable mixture further comprises about 0 to about 10 wt percent poly(N-vinyl pyrrolidinone).

65. The silicone hydrogel of claim 62, wherein the polymerizable mixture further comprises about 2 to about 7 wt percent poly(N-vinyl pyrrolidinone).

66. A contact lens comprising the reaction product of a silicone based macromer Group Transfer Polymerization product and a polymerizable mixture comprising Si_{8-10} monomethacryloxy terminated polydimethyl siloxane, a polydimethylsiloxane other than Si_{8-10} monomethacryloxy terminated polydimethyl siloxane, and a hydrophilic monomer.

67. The contact lens of claim 66, wherein the macromer is the Group Transfer Product of a reaction mixture comprising 2-(trimethylsiloxy)ethyl methacrylate, methyl methacrylate, methacryloxypropyltris(trimethylsiloxy)silane, and mono-

methacryloxypropyl terminated mono-butyl terminated polydimethylsiloxane.

68. The contact lens of claim 66, wherein the macromer is the Group Transfer Polymerization product of reaction mixture comprising about 19.1 moles of 2-(trimethylsiloxy)ethyl methacrylate, about 2.8 moles of methyl methacrylate, about 7.9 moles of methacryloxypropyltris(trimethylsiloxy)silane, and about 3.3 moles of mono-methacryloxypropyl terminated mono-butyl terminated polydimethylsiloxane

69. The contact lens of claim 66, 67, or 68 wherein the polymerizable mixture comprises Si_{8-10} monomethacryloxy terminated polydimethyl siloxane; methacryloxypropyl tris(trimethyl siloxy) silane; N,N-dimethyl acrylamide; 2-hydroxy ethyl methacrylate; and tetraetheyleneglycol dimethacrylate.

70. The contact lens of claim 69, wherein the macromer is present in an amount of about 10 to about 60 wt percent, the Si_{8-10} monomethacryloxy terminated polydimethyl siloxane is present in an amount of about 0 to about 45 wt percent; the methacryloxypropyl tris(trimethyl siloxy) silane is present in an amount of about 0 to about 40 wt percent; the N,N-dimethyl acrylamide is present in an amount of about 5 to about 40 wt percent; the 2-hydroxy ethyl methacrylate is present in an amount of about 0 to about 10 wt percent; and the tetraethyleneglycol dimethacrylate is present in an amount of about 0 to about 5 wt percent.

71. Th contact lens of claim 69, wherein the macromer is present in an amount of about 15 to about 25 wt percent, the

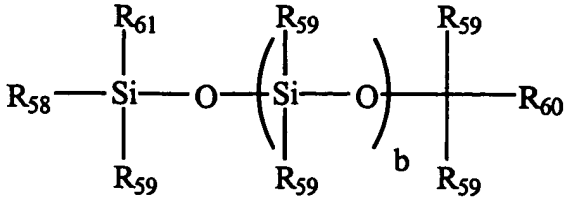
Si_{8-10} monomethacryloxy terminated polydimethyl siloxane is present in an amount of about 20 to about 30 wt percent; the methacryloxypropyl tris(trimethyl siloxy) silane is present in an amount of about 15 to about 25 wt percent; the N,N-dimethyl acrylamide is present in an amount of about 20 to about 30 wt percent; the 2-hydroxy ethyl methacrylate is present in an amount of about 2 to about 7 wt percent; and the tetraethyleneglycol dimethacrylate is present in an amount of about 0 to about 5 wt percent.

72. The contact lens of claim 69, wherein the polymerizable mixture further comprises poly(N-vinyl pyrrolidinone).

73. The contact lens of claim 70, wherein the polymerizable mixture further comprises about 0 to about 10 wt percent poly(N-vinyl pyrrolidinone).

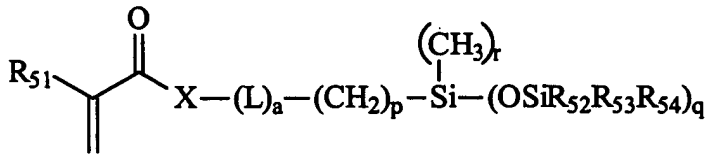
74. The contact lens of claim 71, wherein the polymerizable mixture further comprises about 2 to about 7 wt percent poly(N-vinyl pyrrolidinone).

75. A method of lowering the Young's modulus and tan δ of a silicone hydrogel comprising the step of incorporating in said hydrogel, a mono-alkyl terminated polydimethylsiloxane monomer having the structure:



where b = 0 to 100; R_{58} is a monovalent group containing at least one ethylenically unsaturated moiety; R_{59} is independently a monovalent alkyl, or aryl group, which may be further substituted with alcohol, amine, ketone, carboxylic acid or ether group; R_{60} is a monovalent alkyl, or aryl group, which may be further substituted with alcohol, amine, ketone, carboxylic acid or ether groups; and R_{61} is independently alkyl or aromatic, or a monovalent siloxane chain comprising from 1 to 100 repeating Si-O units.

76. The method of claim 75, wherein said silicone hydrogel additionally comprises a silicone-containing monomer other than that of claim 1 and having the structure:



wherein R_{51} is H, C_{1-5}alkyl, or an ethylenically unsaturated moiety, q is 1, 2, or 3 and for each q, R_{52}, R_{53} and R_{54} is independently an alkyl group, an aromatic group or a monovalent siloxane chain comprising from 1 to 100 repeating Si-O units, p is 1 to 10, r = (3-q), X is O or NR_{55}, where R_{55} is H or a monovalent alkyl group with 1 to 4 carbons, a is 0 or 1, and L is a divalent linking group.

77. The method of claim 75, wherein said silicone hydrogel additionally comprises 3-methacryloxypropyltris (trimethylsiloxy) silane.

78. The method of claim 76, wherein each of R_{52}, R_{53}, and R_{54} is independently ethyl, methyl, benzyl or phenyl.

79. The method of claim 75 wherein Young's modulus is lowered to less than about 100 psi and tan δ of equal to or less than about 0.25 at a frequency of 1 Hz at 25°C.

80. The method of claim 75 wherein Young's modulus is lowered to less than about 80 psi and tan δ of equal to or less than about 0.25 at a frequency of 1 Hz at 25°C.